THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Material Science with Engineering Technology Applications

ENGRTEC 3100

Credit Hours:
0.50

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lab

Course Description:
Supplemental course for BSET students that should be taken along with MatScEn 2010. This course will provide hands-on exposure to common manufacturing materials physical and chemical characteristics (like electrical and heat conductance) as well as testing methods (like stress, strain, hardness, brittleness, and microstructure.)

Prerequisites and Co-requisites:
Prereq: Physics 1250 or 1260, and Math 1151 or 1154, and Chem 1210 or 1250; or permission of instructor.

Course Goals / Objectives:
- Ability to conduct experiments in materials performance. (Hardness testing and tensile testing)
- Introduction to heat treating of steels
- Develop metallographic preparation skills
- Development of techniques for interpreting microstructures.
- Introduction to concept of thermals and electrical conductivity in metals.
- Skills in reduction, analysis and presentation of redundant and less accurate data.
- Ability to write, clear, concise, complete and correct technical reports.

Course Topics:

- Mechanical Properties of Materials (Tensile testing and hardness testing)
- Microscopy and Microstructure of metals
- Heat treatment of metals
- Thermal and Electrical conductivity of metals

Designation:

Required